CLAIMS

1. A downhole releasable coupling, the coupling comprising a first substantially tubular member having a bore therethrough, a first screw thread around an outer surface thereof, one or more raised portions arranged circumferentially on the outer surface, the raised portions defining a first face surrounding the member and substantially perpendicular to the outer surface, the first face being directed toward the first screw thread, the first face having a plurality of first projections, each first projection having a substantially first straight portion arranged parallel to the bore and a first sloping portion, joining an apex of the first projection to a base of an adjacent projection; and a second tubular member having a bore therethrough, a second screw thread around an inner surface thereof, one or more raised portions arranged circumferentially on an outer surface thereof, the raised portions defining a second face surrounding the member and substantially perpendicular to the outer surface, the second face being at an end of the member, the second face having a plurality of second projections, each second projection having a substantially second straight portion arranged parallel to the bore and a second sloping portion, joining an apex of the second projection to a base of an adjacent projection; wherein the first tubular member slides within the second tubular member, the first and second screw threads mate and on part engagement of the screw threads, the first and second straight portions can meet to thereby transfer torque when a member is rotated in the direction of the screw threads.

2. A downhole releasable coupling as claimed in Claim 1 wherein the screw threads are right hand screw threads.

3. A downhole releasable coupling as claimed in Claim 1 or Claim 2 wherein the screw threads are multiple start threads.

4. A downhole releasable coupling as claimed in any preceding Claim wherein the screw threads are double start screw threads.

5. A downhole releasable coupling as claimed in any preceding Claims wherein the screw threads are square.

6. A downhole releasable coupling as claimed in any preceding Claim wherein the screw threads have generous lead in edges so that the coupling can be re-engaged easily.

7. A downhole releasable coupling as claimed in any preceding Claim wherein the tubular members are initially releasably attached to each other by shearable means.

8. A downhole releasable coupling as claimed in Claim 7 wherein the shearable means is one or more shear pins arranged through apertures on the second member and resting in pockets in the outer surface of the first member.

9. A downhole releasable coupling as claimed in Claim 8 wherein the apertures and the pockets align when the first and second straight portions abut.

10. A downhole releasable coupling as claimed in any preceding Claim wherein at least one o-ring is arranged at either end of the screw thread circumferentially around the tubular member.

11. A downhole releasable coupling as claimed in any preceding Claim wherein the coupling comprises four raised portions on each tubular member; each face providing two equidistantly spaced projections; four apertures being arranged through the raised portions of the second tubular; shear pins being located through each aperture into four pockets on the outer surface of the first tubular; and an o-ring located into a groove at each end of the screw thread of the first tubular member.

12. A drilling liner system comprising a running tool having a substantially cylindrical first body and a first bore therethrough, the first body having an end adapted for connection to a drill string, and a setting sleeve having a substantially cylindrical second body and a second bore therethrough, the second body having an end adapted for connection to a liner, wherein the running tool and the setting sleeve couple via a detachable coupling according to any one of Claims 1 to 11.

13. A drilling liner system as claimed in Claim 12 wherein the running tool includes the first tubular

and the setting sleeve includes the second tubular member.

14. A drilling liner system as claimed in Claim 12 or Claim 13 wherein the bores align to provide a continuous central bore through the system.

15. A drilling liner system as claimed in any one of Claims 12 to 14 wherein the screw threads are right hand screw threads.

16. A drilling liner system as claimed in any one of Claims 12 to 15 wherein the running tool includes one or more first radial outlets arranged circumferentially around the first body, the setting sleeve includes one or more second radial outlets arranged circumferentially around the second body, and in a first position the first and second radial outlets are aligned and fluid can pass radially from the system.

17. A drilling liner system as claimed in Claim 16 wherein there are four radial outlets in each body.

18. A drilling liner system as claimed in Claim 16 or Claim 17 wherein the first position occurs when the first and second screw threads are partially engaged.

19. A drilling liner system as claimed in any one of Claims 12 to 18 wherein the system further comprises a seal stem, the stem having a substantially cylindrical third body with a third bore therethrough, a third screw thread on an outer surface thereof for

engagement to the second screw thread, and a polished end distal to the screw thread. Once the running tool is decoupled from the setting sleeve, the stem can be connected to the setting sleeve to provide a polished bore receptacle to the setting sleeve for tie-back purposes.

20. A method of setting a liner in a well bore, the method comprising the steps;

(a) providing a drilling liner system according to any one of Claims 12 to 19;
(b) connecting the running tool and setting sleeve by engaging the screw threads until the first and second straight portions meet;
(c) connecting the running tool to a drill string and the setting sleeve to a liner;
(d) transmitting torque to the liner by rotating the drill string in a first direction;
(e) cementing the liner in place by introducing cement slurry axially into the bore, to allow the slurry to exit the liner and locate between the liner and the well bore; and
(f) rotating the drill string in a reverse direction until the screw threads disengage; and
(g) removing the running tool from the well bore.

21. A method of setting a liner in a well bore as claimed in Claim 20 wherein the first direction is right hand rotation.

22. A method of setting a liner in a well bore as claimed

in Claim 20 or Claim 21 wherein the method includes the step of removing an assembly from the well bore through the liner when the system is connected to the liner.

23. A method of setting a liner in a well bore as claimed in Claim 20 or Claim 21 wherein the method includes the step of shearing the shearing means when the drill string is rotated in the reverse direction.

24. A method of setting a liner in a well bore as claimed in any one of Claims 20 to 23 wherein the method includes the step of aligning the radial ports to expel fluid from the system.

25. A method of setting a liner in a well bore as claimed in any one of Claims 20 to 24 wherein the method includes the step of rotating and reciprocating the system on the drill string during cementing.

26. A method of setting a liner in a well bore as claimed in any one of Claims 20 to 25 wherein the method includes the steps of:

(a) following rotation in the first direction, noting a first circulation pressure in the well bore;

(b) applying liner weight to bottom of well and partly releasing the running tool from the setting sleeve to shear the shear screws and align the radial ports;

(c) confirming that circulation pressure has dropped from the first circulation pressure;

(d) on pressure loss rotating the drill string until the straight portions meet; and

(e) confirming circulation pressure has returned to first circulation pressure.